

What is claimed is:

1. (Currently amended) A method for the production of structural components out of long-fiber thermoplastic (LFT) with integrated continuous-fiber (CF) reinforcements in a single stage LFT - pressing manufacturing process, the method comprising the steps of:

- melting impregnated CF - tapes ~~open~~ in a heating station;
  - subsequently transferring the melted CF-tapes into a two-part profile tool of a CF - profile forming station;
  - within the CF-profile forming station, pressing the CF tapes for a ~~short~~-time period by means of a ~~high~~-heat transfer to the thermally conditioned profile tool, to yield ~~yielding~~ a shock-cooled, solidified, dimensionally stable ~~thin~~-casing layer, an inner part of the CF tapes remaining melted, and the CF tapes defining a CF-profile;
  - after the pressing and shock cooling, separating the CF-profile from the profile tool;
  - after the separating, transferring the CF-profile into an LFT - tool and positioning the CF-profile in a defined manner;
  - after the positioning, introducing a molten LFT - mass into the LFT-tool;
  - pressing the LFT-mass together with the CF - profile;
- ~~characterized in~~ so that during the pressing of the LFT-mass together with the CF-profile, the casing layer is melted ~~open~~ again at the surface and is thermoplastically melted together with the surrounding LFT - mass.

2. (Original) The method of claim 1 wherein as the LFT - pressing manufacturing process, an LFT - extrusion process with a vertical LFT - press and a horizontal pressing tool is utilised.
3. (Currently amended) The method of claim 1 wherein ~~as the~~ LFT - pressing manufacturing process~~[[,]]~~ comprises an LFT - injection moulding process~~is utilised~~.
4. (Currently amended) The method of claim 3 wherein ~~the an~~ LFT - injection moulding process comprises a~~with~~ back pressing in the source flow~~is utilised~~.
5. (Original) The method of claim 1 wherein several CF - profiles are positioned in the LFT - tool and subsequently pressed together with the LFT - mass.
6. (Original) The method of claim 1 wherein CF - profiles are simultaneously produced in more than one CF - profile production line.
7. (Currently amended) The method of claim 1 wherein in ~~a~~the profile tool, more than one CF - profile is produced.
8. (Currently amended) The method of claim 1 wherein ~~in a~~ the CF - profile forming station ~~with~~ comprises more than one profile tool, so that a plurality of CF - profiles are pressed simultaneously.

9. (Original) The method of claim 1 wherein in the CF - profile forming station, a multi-stage profile forming process is carried out by means of a multi-part profile tool.

10. (Currently amended) The method of claim 1 wherein the melted CF - tapes are pre-formed ~~in plastic condition~~ by pre-forming elements during the transfer into the profile tool.

11. (Original) The method of claim 1 wherein the shaping of the CF - profile comprises a three-dimensional profile shaping.

12. (Original) The method of claim 1 wherein the CF - profile in longitudinal direction comprises a bend, a twist, a fold, or a surface structuring and wherein the CF-profile has differing cross-sectional shapes.

13-14. (Canceled)

15. (Original) The method of claim 1 wherein the shock-cooling period has a duration in the range of from 1 to 5 sec.

16. (Original) The method of claim 1 wherein the LFT - mass comprises an average fiber length of at least 3 mm.

17. (Original) The method of claim 1 wherein the thermoplastic material consists of partially crystalline polymers.

18. (Currently amended) The method of claim 1 wherein the thermoplastic material consists of ~~partially crystalline polymers are~~ polypropylene, polyethylene-terephthalate, polybutylene-terephthalate or polyamide, and the continuous fiber reinforcement consists of glass-, carbon- or aramide-fibers.

19. (Original) The method of claim 1 wherein the CF - profiles comprise a surface layer of 0.1 to 0.2 mm of pure thermoplastic material without CF - fiber reinforcement.

20. (Original) The method of claim 1 wherein the CF-profiles are built-up out of layers with differing fiber orientations.

21-22. (Canceled)

23. (Currently amended) The method of claim ~~124~~ wherein the CF - profiles comprise locally differing shock-cooling zones.

24. (Currently amended) The method of claim 1 wherein a surface of the CF - profile adjacent to the LFT - tool has been ~~strongly~~ shock-cooled to a larger extent on one side than on ~~and the opposite side has been more weakly shock cooled.~~

25. (Canceled)

26. (Currently amended) The method of claim 17, ~~characterised in that surface~~ wherein the surfaces of the CF - profiles following the shock-cooling are very rapidly brought back again to a temperature above DT<sub>kr</sub> from a temperature below the crystallisation temperature range DT<sub>kr</sub>.

27. (Currently amended) The method of claim 17, ~~characterised in that~~ wherein during the shock-cooling with a slower passage through a crystallisation temperature range DT<sub>kr</sub>, a corresponding crystalline proportion is generated in a lower layer.

28. (Currently amended) The method of claim 1, ~~characterised in that~~ wherein the CF - profiles are positioned in shapings of the LFT - tool in differing fitting positions.

29-32. (Canceled)

33. (Currently amended) The method of claim 1 wherein ~~installation of claim 30,~~ ~~characterised by~~ an IR - heating station with a protection gas atmosphere, a chain conveyor, a transfer robot with grippers for transferring of the CF - profiles and molten LFT - mass, an LFT - extruder, an LFT - press and an installation control system with partial controls for the different stations.

34. (Currently amended) A structural component with partially crystalline thermoplastic material and with at least one CF - profile integrated in an LFT - mass, which is produced according to the method of claim 1 with shock-cooled CF - profiles in a single stage LFT - pressing manufacturing process, the method comprising the steps of:

melting impregnated CF – tapes in a heating station;

subsequently transferring the melted CF – tapes into a two-part profile tool of a CF – profile forming station;

within the CF – profile forming station, pressing the CF – tapes for a time period by means of heat transfer to the thermally conditioned profile tool, to yield a shock-cooled, solidified, dimensionally stable casing layer, an inner part of the CF – tapes remaining melted, and the CF – tapes defining a CF – profile;

after the pressing and shock cooling, separating the CF – profile from the profile tool;

after the separating, transferring the CF – profile into an LFT – tool and positioning the CF – profile in a defined manner;

after the positioning, introducing a molten LFT – mass into the LFT – tool;

pressing the LFT – mass together with the CF – profile;

so that during the pressing of the LFT – mass together with the CF – profile, the casing layer is melted again at the surface and is thermoplastically melted together with the surrounding LFT – mass and wherein the CF – profiles in a zone of a lower layer below the profile surface comprise an increased proportion of crystalline material.

35-36. (Canceled)

37. (Currently amended) The structural component of claim 34 ~~with partially crystalline thermoplastic material, characterised in that on~~ wherein, at contact surfaces between CF - profiles and LFT - mass it comprises a ~~directed~~ crystallisation with a directed crystal growth through ~~over~~ the contact surface.